

**WHAT IS CLAIMED IS:**

1. A forward error correction apparatus using turbo codes, comprising:
  - 5 a decoder, adapted to iteratively decode an input frame until an iterative decoding stop command is received under a predetermined control, and output the absolute reliability of each symbol in the frame;
  - a measurement detector, adapted to detect the minimum of the absolute reliabilities as a measurement;
  - 10 a threshold detector, adapted to detect a threshold using a-priori information and extrinsic information of each symbol; and
  - a controller, adapted to compare the measurement with the threshold and output the iterative decoding stop command according to the comparison result.
- 15 2. The forward error correction apparatus of claim 1, wherein the controller is further adapted to output the iterative decoding stop command if the measurement exceeds the threshold.
3. The forward error correction apparatus of claim 1, wherein the  
20 threshold detector is further adapted to comprise:
  - an OR gate, adapted to a perform logical OR-operation on the sign of the a-priori information with the sign of the extrinsic information; and
  - a counter, adapted to receive a signal from the OR gate and count the number of different signs between the a-priori information and the extrinsic  
25 information.
4. The forward error correction apparatus of claim 3, wherein the threshold detector is further adapted to comprise:
  - a multiplier, adapted to multiply the counted value by a  
30 compensation value according to quantization of the symbols input to the

decoder.

5. The forward error correction apparatus of claim 1, wherein the measurement detector is further adapted to comprise:

5 a first selector, adapted to receive an initial value and the minimum absolute reliability of the first symbol of the input frame, and select one of the initial value and the minimum absolute reliability according to a select signal received from the controller;

a comparator, adapted to receive the absolute reliability and the output of  
10 the first selector, compare the absolute reliability with the output of the first selector, and output a select signal according to the comparison result; and

a second selector, adapted to receive the absolute reliability and the output of the first selector, and select as the minimum absolute reliability one of the absolute reliability with the output of the first selector according to the select  
15 signal received from the comparator,

wherein minimum absolute reliability is sequentially measured for the symbols of the frame and the minimum of the minimum absolute reliabilities is selected as the measurement.

20 6. A forward error correction method using turbo codes, comprising the steps of:

iteratively decoding an input frame until an iterative decoding stop command is received under a predetermined control, and outputting the absolute reliability of each symbol in the frame;

25 detecting the minimum of the absolute reliabilities as a measurement;

detecting a threshold using the a-priori information and extrinsic information of the each symbol; and

comparing the measurement with the threshold and outputting the iterative decoding stop command according to the comparison result.

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7. The forward error correction method of claim 6, wherein the iterative decoding stop command is output if the measurement exceeds the threshold.

5 8. The forward error correction method of claim 6, wherein the threshold detection step comprises the steps of:

performing a logical OR-operation on the sign of the a-priori information with the sign of the extrinsic information; and

counting the number of different signs between the a-priori information  
10 and the extrinsic information using an OR-operated value.

9. The forward error correction method of claim 8, wherein the threshold detection step further comprises the step of multiplying the counted value by a compensation value according to quantization of input decoder  
15 symbols.

10. The forward error correction method of claim 6, wherein the measurement detection step comprises the steps of:

selecting one of an initial value and the minimum absolute reliability of  
20 an input symbol;

comparing the absolute reliability with the selected value and outputting a select signal according to the comparison result;

selecting as the minimum absolute reliability one of the absolute reliability with the selected value according to the select signal; and

25 sequentially measuring the minimum absolute reliabilities of the symbols of the frame and outputting the minimum of the minimum absolute reliabilities as the measurement.